Properties of Water and Cycles Study Guides

Define the following terms:

**Density**

**Specific Heat Capacity**

**Freezing Point**

**Boiling Point**

**Cohesion**

**Adhesion**

**Surface Tension**

1. Why is water considered to be a polar molecular?
2. What are hydrogen bonds and why are they responsible for many of the properties of water?
3. What happens when solid water (ice) is placed in liquid water? Why is this unique? What causes this?
4. Why is cohesion an important property of water?
5. Why is adhesion an important property of water?
6. Why is water’s high specific heat capacity important?

Water Cycle

Explain the following parts of the water cycle:

**Evaporation**

**Condensation**

**Precipitation**

**Collection**

Draw a picture showing all these steps in the water cycle:

1. What is another name for the water cycle?
2. What happens when clouds collect too much water?
3. What is needed to form clouds besides water vapor?
4. What are some different types of precipitation?
5. What are some different things that will collect water after it falls from the sky?
6. What are some ways the water cycle is important to life on Earth? Explain.

Nitrogen Cycle

1. Why is nitrogen gas in the atmosphere not usable for plants and animals?
2. What are the three ways nitrogen can be fixed to change it from nitrogen gas into usable nitrogen compounds?
3. Why is nitrogen important to life?
4. What type of organism is responsible for most of the nitrogen fixation?
5. How does nitrogen get back into the air after plants and animals use it?
6. Draw the nitrogen cycle
7. Starting with nitrogen gas with the air, explain how nitrogen would go through the nitrogen cycle and end up back in the air. (There is more than one possible path for this)

Carbon Cycle

1. Why is carbon considered the building block of life?
2. Explain the role that photosynthesis and respiration play in the carbon cycle. Draw a diagram.
3. What are areas that store carbon over long periods of time? Give two examples.
4. What is the carbon compound that occurs naturally in the air?
5. What organisms play an important role in the breakdown of dead carbon-based material and the creation of fossil fuels?
6. Why does burning fossil fuels put extra carbon compounds into the environment?
7. What are the three main types of fossil fuels? What do we use fossil fuels for?
8. What are two ways we can help to limit the amount of extra carbon that gets put into the environment? Explain.
9. Starting with carbon in the atmosphere, trace the path of a carbon molecule through the carbon cycle. (There is more than one possible path)